

What Is Claimed Is:

1. A method for promoting hematopoietic or progenitor cell engraftment in an animal, comprising:

5 administering to an animal in need of hematopoietic or progenitor cell engraftment a therapeutically effective amount of non-autologous mesenchymal stem cells thereby promoting hematopoietic or progenitor cell engraftment.

2. The method of claim 1 wherein said animal is a human patient and said
10 mesenchymal stem cells are allogeneic human mesenchymal stem cells.

3. The method of claim 2 wherein said allogeneic mesenchymal stem cells are obtained from an individual not MHC matched to the human patient.

15 4. The method of claim 1 wherein said mesenchymal stem cells are allogeneic mesenchymal stem cells.

5. The method of claim 1 wherein said animal is a human patient.

20 6. The method of claim 1 wherein the mesenchymal stem cells are recovered from bone marrow and are administered to the animal in a cell preparation which is substantially free of blood cells.

7. The method of claim 1 wherein the cell preparation is administered in
25 conjunction with a carrier for the cell preparation.

8. The method of claim 7 wherein the allogeneic human mesenchymal stem cells are administered systemically.

30 9. The method of claim 7 wherein the preparation is administered intravenously.

10. The method of claim 1 wherein the allogeneic human mesenchymal stem cells express incorporated genetic material of interest.

11. A method for treating a human subject for promoting muscle tissue growth, comprising:

treating a recipient human subject in need of muscle tissue growth by administering a therapeutically effective amount of allogeneic mesenchymal stem cells to said recipient human subject, wherein said allogeneic mesenchymal stem cells are obtained from a donor human subject and wherein a step of MHC matching of said donor human subject is not employed prior to the administration of said allogeneic mesenchymal stem cells to the recipient human subject.

12. The method of claim 11 wherein the allogeneic human mesenchymal stem cells are recovered from human bone marrow and are administered to the recipient human subject in a cell preparation which is substantially free of blood cells.

13. The method of claim 11 wherein the cell preparation is administered in conjunction with a carrier for the cell preparation.

14. The method of claim 13 wherein the allogeneic human mesenchymal stem cells are administered systemically.

15. The method of claim 13 wherein the preparation is administered intravenously.

16. The method of claim 11 wherein the allogeneic human mesenchymal stem cells express incorporated genetic material of interest.

17. A method of promoting connective tissue implantation in an animal

comprising the steps of adhering allogeneic mesenchymal stem or progenitor cells onto the connective surface of a prosthetic device and implanting into an animal the prosthetic device containing these mesenchymal cells under conditions suitable for differentiating the cells into the type of skeletal or connective tissue
5 needed for implantation.

18. The method of claim 17 wherein said animal is a human patient.

19. The method of claim 17 wherein said mesenchymal stem cells are
10 human mesenchymal stem cells.